

Background: Inconsistent reporting of outcomes in community pharmacist-led medication review studies hinders synthesis of robust evidence on effectiveness of interventions. Although a Core Outcome Set (COS) has been developed to overcome this issue, it is not clear how these outcomes should be measured.

Purpose: The development of a Core Outcome Measurement Set (COMS) aims to standardize the measurement process to ensure comparability across studies. We aimed to select valid, feasible and cross-culturally applicable measurement instruments or approaches for each core outcome (patient-reported outcomes: health-related quality of life, pain relief; medication use-related outcome: overuse, underuse, potentially inappropriate medications, clinically significant drug-drug interactions; adverse event: drug-related hospitalization).

Method: A multiphase approach was used to develop the COMS. First, a literature search was conducted to identify instruments and subsequently to obtain information on their feasibility (e.g., validity, translated versions). Second, a group of ten international experts was assembled, ensuring expertise was covered across all outcomes. Experts met via video conferences in September 2024 and determined which aspects of feasibility were relevant to consider when selecting an instrument for patient-reported and medication use-related outcomes, facilitating a reduction in the number of potential instruments. Furthermore, experts identified approaches to measure the outcome 'hospitalization' and ranked them according to feasibility and reliability. The online platform Conceptboard was used to visually brainstorm and organize ideas. Consensus was reached through facilitated discussion and voting, guided by two independent moderators.

Findings: Overall, aspects that were considered important for the selection of instruments were the 'content', 'completion time', 'copyright' and 'availability of translations'. For patient-reported outcomes 'validity' was also voted as important. 'Up-to-datedness' and 'level of expertise for usage' were deemed important for medication use-related outcomes. Furthermore, experts noted that these feasibility aspects were often interrelated, so it was necessary to consider them in combination for each instrument. Regarding measuring hospitalization, only the 'patient interview with short recall period' approach was considered to be both highly reliable and feasible while utilizing 'healthcare professionals interviews/records', 'electronic/health insurance records' or 'hospital records' were ranked as more reliable but less feasible for the community pharmacy setting.

Conclusions: Based on our findings, a pre-selection of potential instruments can be made. The next and final step in the development of the COMS is to reach consensus on the most appropriate measurement instruments or approaches for each core outcome. This harmonization will facilitate future comparative research and quality improvement in community pharmacist-led medication review studies.

<https://doi.org/10.1016/j.sapharm.2025.02.050>

Pharmacists' Well-being and Professional Satisfaction: A Survey on Quality of Life and Burnout in Bulgaria

Daniela Kafalova¹, Evelina Gavazova^{1,*}, Jan Bashev², Kalina Andreevska³, Katerina Slavcheva¹, Nelina Neycheva¹, Radiana Staynova¹

¹ Department of Organisation and Economics of Pharmacy, Faculty of Pharmacy, Medical University of Plovdiv, Bulgaria; ² Faculty of Pharmacy, Medical University of Plovdiv; ³ Sofia University

* Corresponding author:

E-mail address: gavazova.evelina@gmail.com (E. Gavazova).

Background: The pharmaceutical profession is classified as a regulated field in Bulgaria, with formal training programs designed to equip individuals with expertise in medication therapy management. Bulgarian pharmacists pursue professional careers across a variety of practice settings. In recent years, particularly following the COVID-19 pandemic, numerous studies have highlighted the heightened levels of burnout and stress experienced by healthcare professionals, including pharmacists.

Aim: To assess the well-being and professional satisfaction of Bulgarian pharmacists across various occupational settings.

Methods and Materials: A questionnaire consisting of 16 items was developed to gather data on pharmacists' well-being and job satisfaction. The survey was distributed online and made accessible via the official website and social media platforms of the Bulgarian Pharmaceutical Union.

Results: A total of 401 licensed pharmacists participated in the study. Of these, 218 were employed in community pharmacies, 20% worked in clinical research

companies, 9% were engaged in academic roles, and 6% were employed in hospital pharmacies. Community pharmacists reported the highest levels of stress, followed by hospital pharmacists. The assessment of sleep quality and duration indicated that pharmacists working in clinical trials experienced the best sleep patterns, although sleep duration varied by age group. Additionally, 55% of participants described their jobs as stressful, with 46% indicating that their compensation was insufficient relative to the intensity of their work.

Conclusion: The findings of this study highlight significant variations in stress levels, job satisfaction, and well-being among Bulgarian pharmacists across different professional settings. The elevated stress levels in these groups may be attributed to the high workload, patient-facing responsibilities, and the pressures associated with managing medication therapy in both community and hospital pharmacy settings. Further research is needed to explore the underlying causes of stress and burnout in different pharmacy sectors and to identify effective solutions for improving the quality of life and job satisfaction for Bulgarian pharmacists.

<https://doi.org/10.1016/j.sapharm.2025.02.048>

Feasibility of the calculation of quality indicators for medication reviews from a proficiency test system with virtual patients

Carolyn Keip¹, Carina John², Oliver Schwalbe³, Isabel Waltering⁴, Ulrich Jaehde¹, Ronja Woltersdorf^{1,*}

¹ Department of Clinical Pharmacy, Institute of Pharmacy, University of Bonn, Bonn, Germany; ² Chamber of Pharmacists North Rhine, Düsseldorf, Germany; ³ WIVA - Westphalia-Lippe Institute for Health Services Research in Pharmacy, Münster, Germany; ⁴ Department of Clinical Pharmacy, Institute of Pharmaceutical and Medicinal Chemistry, University of Münster, Münster, Germany

* Corresponding author:

E-mail address: r.woltersdorf@uni-bonn.de (R. Woltersdorf).

Background: In order to measure the quality of medication reviews (MR) type 2a in community pharmacies a first set of quality indicators was developed in 2018 (Waltring et al., Z Evid Fortbild Qual Gesundheitswes 2020), but not yet fully implemented.

Purpose: The project aims at updating and validating the quality indicator set as part of the development of a quality assurance system for MR performed in German community pharmacies (QuaMedA- study).

Method: The set of quality indicators for MR was refined in 2023 by a two-step Delphi survey and subsequent weighting of the final indicators by an expert panel consisting of pharmacists and physicians. The assessment was performed using the RUMBA criteria (relevant, understandable, measurable, behaviourable, achievable). In order to calculate the final quality indicators the required data extraction was integrated in a proficiency test system with virtual patients that enables the measurement of MR outcomes as well as process fidelity. To address an equal weighting of the indicators by the expert panel, the respective value ranges were converted to a maximum of one point per indicator, leading to a final QI score of up to six points.

Findings: The refined set of quality indicators for MR consists of two indicators each regarding structure (qualification of the pharmacist, number of MR), process (evaluation of drug-related problems (DRP), recommendations for solving DRP) and outcome (medication plan, result report). Data for all quality indicators could be extracted for 219 participants who entirely completed the first proficiency test in September 2024. Highest indicator values were reached regarding the qualification of the pharmacists and the completeness of recommendations for solving DRP, with an average of 0.9 ± 0.2 (0.3-1.0) and 1.0 ± 0.1 (0.0-1.0), respectively. Higher variations were detected for the evaluation of all relevant DRP categories (0.5 ± 0.2 ; 0.1-1.0). On average, a QI score of 4.4 ± 0.8 (1.8-6.0) was reached.

Conclusion: Calculating the refined quality indicators for MR by an external and automated approach within the developed proficiency test was feasible and further allows for direct comparison of the results of the participating pharmacists. Next steps will be the validation of the calculated QI scores by correlation with the determined quality of the corresponding MR, followed by further evaluation of the measurement properties within a second proficiency test.

Acknowledgements: The project is financially supported by the Apotheker-Stiftung Nordrhein and the Apothekerstiftung Westfalen-Lippe.

<https://doi.org/10.1016/j.sapharm.2025.02.049>